



**THE UNITED STATES PATENT AND TRADEMARK OFFICE**  
**BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

**APPEAL BRIEF FOR APPELLANT**

Ex parte Eiji HAMAMOTO et al.

Serial No.: 10/071,301

Filed: February 8, 2002

Appeal No.: Unassigned

Group Art Unit: 1772

Examiner: HON, SOW FUN

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Date: **March 18, 2005**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

Appeal No: **Unassigned**

In re the Application of: Eiji HAMAMOTO et al.

Confirmation No.: 1113

Serial Number: 10/071,301

Group Art Unit: 1772

Filed: February 8, 2002

Examiner: HON, SOW FUN

For: POLARIZING PLATE AND OPTICAL MEMBER

Attorney Docket No.: **020588**

Customer Number: **38834**

**APPEAL BRIEF**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450  
Sir:

March 18, 2005

Applicants appeal the October 14, 2004 Final Rejection of claims 1-24.

Applicants (now referred to hereinbelow as “appellants”) filed a Notice of Appeal on January 14, 2005.

**I. REAL PARTY IN INTEREST**

The real party in interest is the assignee of the subject application, which is:

**NITTO DENKO CORPORATION  
1-2, Shimohozumi 1-chome  
Ibaraki-shi, Osaka 567-8680 JAPAN**

## **II. RELATED APPEALS AND INTERFERENCES**

Appellants know of no other appeals or interference proceedings related to the present appeal.

## **III. STATUS OF CLAIMS**

Pending claims 1-24 stand rejected. No claims are allowed or only objected to. The claims on appeal are claims 1-24. Claims 1, 6, 8, and 13 are the only independent claims.

## **IV. STATUS OF AMENDMENTS**

No amendments were filed subsequent to the Final Rejection.

## **V. SUMMARY OF CLAIMED SUBJECT MATTER**

The claimed invention relates to polarizing plates, and more specifically to the adhesive used to bond a transparent protective film to a polyvinyl alcohol-based polarizing film. In the claimed invention, the adhesive layer comprises a water-soluble crosslinking agent capable of crosslinking a vinyl alcohol-based polymer.

In the polarizing plate of claims 1, 6, and 8 (and the claims dependent directly or indirectly thereon, respectively), the adhesive layer comprises (i) a water-soluble crosslinking agent capable of crosslinking a vinyl alcohol-based polymer and (ii) a catalyst. Claim 1 is directed to such a polarizing plate. Claim 6 is directed to an optical member comprising such a polarizing plate and an additional optical layer. Claim 8 is directed to a liquid crystal display comprising such a polarizing plate and a liquid crystal cell.

In the process of producing a polarizing plate of claim 13 (and the claims dependent directly or indirectly thereon), an adhesive layer comprising a water-soluble crosslinking agent capable of crosslinking a vinyl alcohol-based polymer is applied to the polarizing film and the transparent protective film is bonded to the polarizing film.

The basic feature of the claimed invention is explained for example on page 1, lines 16-26 of the specification. The catalyst is described for example on page 4, lines 21-22 of the specification. The additional optical layer is described for example on page 2, lines 3-12 of the specification. The liquid crystal display is described for example on page 8, lines 9-18 of the specification.

## **VI. GROUND OF REJECTION TO BE REVIEWED ON APPEAL**

Appellants appeal the following three rejections:

(1) Rejection of claims 1-5, 9-12, and 19-24 under 35 U.S.C. §103(a) as obvious over U.S. Patent No. 3,531,351 to Buzzell (hereinafter “Buzzell”);

(2) Rejection of claims 6-8 under 35 U.S.C. §103(a) as obvious over Buzzell in view of U.S. Patent No. 4,545,648 to Shulman et al. (hereinafter “Shulman”); and

(3) Rejection of claims 13-18 under 35 U.S.C. §103(a) as obvious over Buzzell in view of U.S. Patent No. 3,015,989 to Delangre et al. (hereinafter “Delangre”).

## **VII. ARGUMENT**

Appellants explain herein why each obviousness rejections should be reversed.

### **A. Rejection of claims 1-5, 9-12, and 19-24 under 35 U.S.C. §103(a) as obvious over U.S. Patent No. 3,531,351 to Buzzell (“Buzzell”)**

The claims are considered as a group. Claim 1 is the only independent claim of the group.

The Examiner has failed to establish a prima facie case of obviousness. The cited reference Buzzell fails to teach or suggest a water-soluble crosslinking agent in the adhesive layer used to bond a transparent protective layer adhered to a polyvinyl alcohol-based polarizing film, as recited in present claim 1.

**a. Buzzell teaches advantages of a cross-linking agent only with respect to its polyvinyl alcohol-based polarizing film**

Buzzell discloses that adding the crosslinking agent to form the polyvinyl alcohol polarizer films can help “to maintain the dimensional stability of the polymer against ambient humidity” (Buzzell at col. 5, lines 26-27). However, Buzzell is completely silent regarding whether adding a crosslinking agent and catalyst into the adhesive layer would improve the dimensional stability of the polarizing plate laminate.

In particular, contrary to the Examiner’s interpretation, Buzzell at col. 5, line 26, does not disclose the advantages of a cross-linking agent for any “polymer”, but only to the polymers used in the polarizing film. Thus, “the polymer” referred to at col. 5, line 26 of Buzzell is “a dyeable orientable polymer bearing a mordanting function” (Buzzell at col. 5, lines 9-10), which Buzzell defines as “clear in color, castable, stretchable, possess mordant sites than [sic] can react with a dye, be sufficiently swellable in water to be dyed, that is, have its mordant sites exposed and also exhibit good dichroism after appropriate dyeing” (Buzzell at col. 5, lines 13-17). The sentence at col. 5, lines 24-28 of Buzzell is particularly clear on this point, since it refers, not only to “dimensional stability” of the polymer film, but also to “the above-mentioned characteristics,” which are those of its “mordanting” polarizer film, not those of its adhesive layer.

**b. Buzzell is silent as to any possible function or advantage of a cross-linking agent in its adhesive**

In addition, Buzzell is completely silent, not only as to the use of a cross-linking agent with the PVA-containing adhesive discussed at col. 6, line 6, but also as to whether “dimensional stability” is desired for its adhesive layer. Further, the characteristics of the polymer film for which Buzzell suggests a cross-linking agent are dyeability, orientability, transparency, castability, stretchability, and stability (see Buzzell at col. 5, lines 13-17). Thus, none of the listed characteristics of “the polymer” are conventionally applicable to the adhesive material of col. 6, line 5, except “clear in color,” for which a cross-linking agent is not readily relevant.

In other words, Buzzell teaches adding the crosslinking agent when making its polyvinyl alcohol-containing polarizer films to improve their dimensional stability, but Buzzell (i) fails to teach or suggest using a crosslinking agent in its polyvinyl alcohol-containing adhesive, (ii) fails to teach or suggest the desirability of improving the dimensional stability of the polyvinyl alcohol-containing adhesive itself, and (iii) fails to teach or suggest whether adding the crosslinking agent to the polyvinyl alcohol-containing adhesive would improve the dimensional stability of the laminate including a polyvinyl alcohol-containing film.

In summary, the Examiner has failed to establish a suggestion or motivation to use a cross-linking agent in the adhesive of Buzzell, except in hindsight.

**c. Buzzell is completely silent as to improving adhesiveness and prevention of peeling of its adhesive layer**

Buzzell is completely silent regarding ways to improve on adhesiveness of its adhesive layer. In particular, the mordant polymer layer of Buzzell has no relationship with its adhesive layer, and thus, it cannot serve to prevent peeling between a polarizer and a transparent

protective film. As a result, Buzzell does not provide any suggestion or motivation to improve on the adhesiveness of its adhesive layer. In contrast, the present inventors have found that an advantage of having a water-soluble crosslinking agent capable of crosslinking a vinyl alcohol-based polymer in the adhesive layer is that adhesiveness can be improved and peeling between a polarizer and a transparent protective layer can be prevented. The present specification provides evidence of this unexpectedly improved resistance to peeling, as shown for example in Table 1 on page 9 of the present specification. Thus, even if, arguendo, the Examiner had set forth a prima facie case of obviousness, it would be rebutted by the evidence provided in the present specification.

In view of the above, appellant solicits the reversal of the obviousness rejection of claims 1-5, 9-12, and 19-24 under 35 U.S.C. §103(a).

**B. Rejection of claims 6-8 under 35 U.S.C. §103(a) as obvious over U.S. Patent No. 3,531,351 to Buzzell (“Buzzell”) in view of U.S. Patent No. 4,545,648 to Shulman et al. (“Shulman”)**

The claims are considered as a group. Claims 6 and 8 are the only independent claims of the group.

The Examiner has failed to establish a prima facie case of obviousness. The cited reference Shulman fails to remedy the deficiencies of Buzzell discussed above in Part A, which discussion is hereby incorporated herein in its entirety in reference to claims 6 and 8. It is noted that this deficiency of Shulman is acknowledged by the Examiner (see Office Action dated May 4, 2004 at page 5, lines 5-7).

In view of the above, appellants solicit the reversal of the obviousness rejection of claims 6-8 under 35 U.S.C. §103(a).

C. Rejection of claims 13-18 under 35 U.S.C. §103(a) as obvious over U.S. Patent No. 3,531,351 to Buzzell ("Buzzell") in view of U.S. Patent No. 3,015,989 to Delangre et al. ("Delangre")

The claims are considered as a group. Claim 13 is the only independent claim of the group.

The Examiner has failed to establish a prima facie case of obviousness. The cited reference Delangre fails to remedy the deficiencies of Buzzell discussed above in Part A, which discussion is hereby incorporated herein in its entirety. In particular, Delangre is cited by the Examiner only in connection with the preparation of the dichroic polarizing film, not the adhesive.

In view of the above, appellants solicits the reversal of the obviousness rejection of claims 13-18 under 35 U.S.C. §103(a).

### **VIII. CONCLUSION**

For the above reasons, appellants request that the Board of Patent Appeals and Interferences reverse the Examiner's rejections of claims 1-24.



In the event this paper is not timely filed, appellants petition for an appropriate extension of time. The fee for any such extension may be charged to our Deposit Account No. 50-2866, along with any other additional fees which may be required with respect to this paper.

Respectfully submitted,  
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Enclosures: Claims appendix  
Evidence appendix  
Related proceedings appendix

## **CLAIMS APPENDIX**

1. (Previously presented): A polarizing plate comprising a polyvinyl alcohol-based polarizing film containing a dichroic substance and a transparent protective film bonded to at least one surface of the polyvinyl alcohol-based polarizing film through an adhesive layer, wherein

the adhesive layer comprises (i) a water-soluble crosslinking agent capable of crosslinking a vinyl alcohol-based polymer, and (ii) a catalyst.

2. (Original): The polarizing plate according to claim 1, wherein the adhesive layer further comprises the vinyl alcohol-based polymer.

3. (Original): The polarizing plate according to claim 1, wherein the water-soluble crosslinking agent is selected from the group consisting of boric acid, borax, glutaraldehyde, melamine and oxalic acid.

4. (Original): The polarizing plate according to claim 1, wherein the transparent protective film comprises a polymer selected from the group consisting of an acetate-based resin, a polyester-based resin, a polyethersulfone-based resin, a polycarbonate-based resin, a polyamide-based resin, a polyimide-based resin, a polyolefine-based resin and an acrylic resin.

5. (Original): The polarizing plate according to claim 1, wherein the transparent protective film is a triacetylcellulose film having a saponified surface.

6. (Previously presented): An optical member of a laminate made by providing at least one additional optical layer on a polarizing plate comprising a polyvinyl alcohol-based polarizing film containing a dichroic substance and a transparent protective film bonded to at least one surface of the polyvinyl alcohol-based polarizing film through an adhesive layer, wherein the

adhesive layer comprises (i) a water-soluble crosslinking agent capable of crosslinking a vinyl alcohol-based polymer, and (ii) a catalyst, and wherein the additional optical layer is other than a polarizing layer and is applied to at least one of the polarizing film side and the transparent protective film side of the polarizing plate.

7. (Original): The optical member according to claim 6, wherein the additional optical layer is at least one selected from the group consisting of a reflective layer, a semitransparent reflective layer, a brightness-enhanced plate and a retardation plate.

8. (Previously presented): A liquid crystal display comprising a liquid crystal cell and a polarizing plate arranged on at least one surface of the liquid crystal cell, wherein the polarizing plate comprises a polyvinyl alcohol-based polarizing film containing a dichroic substance and a transparent protective film bonded to at least one surface of the polyvinyl alcohol-based polarizing film through an adhesive layer, where the adhesive layer comprises (i) a water-soluble crosslinking agent capable of crosslinking a vinyl alcohol-based polymer, and (ii) a catalyst.

9. (Previously presented): The polarizing plate of claim 1, wherein the adhesive layer is formed from a solution containing at least 0.1 wt% of the water-soluble crosslinking agent.

10. (Previously presented): The polarizing plate of claim 9, wherein the solution contains at least 10 wt% of the water-soluble crosslinking agent.

11. (Previously presented): The polarizing plate of claim 1, wherein the adhesive layer has a thickness of at most 0.5 microns.

12. (Previously presented): The polarizing plate of claim 11, wherein the adhesive layer has a thickness of at least 0.02 microns.

13. (Previously presented): A process of producing a polarizing plate comprising a polyvinyl alcohol-based polarizing film containing a dichroic substance and a transparent protective film bonded to at least one surface of the polyvinyl alcohol-based polarizing film, comprising:

applying an adhesive layer comprising a water-soluble crosslinking agent capable of crosslinking a vinyl alcohol-based polymer to the polarizing film containing a dichroic substance; and

bonding the transparent protective film to the polarizing film.

14. (Previously presented): Polarizing plate obtained by the process of claim 13.

15. (Previously presented): The process of claim 13, wherein the adhesive layer is applied to the polarizing film comprising the dichroic substance after it has been crosslinked and dried.

16. (Previously presented): The process of claim 13, wherein the adhesive layer comprises a catalyst.

17. (Previously presented): The process of claim 16, wherein the catalyst is an acid.

18. (Previously presented): The process of claim 16, wherein the catalyst is hydrochloric acid.

19. (Previously presented): The polarizing plate of claim 1, wherein the catalyst is an acid.

20. (Previously presented): The polarizing plate of claim 1, wherein the catalyst is hydrochloric acid.

21. (Previously presented): The optical member of claim 6, wherein the catalyst is an acid.

22. (Previously presented): The optical member of claim 6, wherein the catalyst is hydrochloric acid.

23. (Previously presented): The liquid crystal display of claim 8, wherein the catalyst is an acid.

24. (Previously presented): The liquid crystal display of claim 8, wherein the catalyst is hydrochloric acid.

**EVIDENCE APPENDIX**

No evidence under 37 C.F.R. § 41.37(c)(1)(ix) is submitted.

**RELATED PROCEEDING APPENDIX**

No decisions under 37 C.F.R. § 41.37(c)(1)(x) are rendered.